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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/071,202	05/01/1998	HOI-SING KWOK	007198-334	5254

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EXAMINER

LESPERANCE, JEAN E

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 12/31/2003

21

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/071,202

Applicant(s)

KWOK ET AL.

Examiner

Jean E Lesperance

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 May 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

Claims 6-21 are presented for examination.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6, 14, 15, and 17 are rejected under 35 U.S.C. 102 (e) as being unpatentable to U.S. Patent # 5,847,798 ("Yang et al.").

As for claim 6, Yang et al. teach FIG. 9 is a plot of the reflection spectra of the black-white bistable cholesteric displays corresponding to a bistable cholesteric display;

multistable color display cells which scatter light in one state where the color display is inherently a plurality of pixels (column 10, lines 34 and 35); the material will be driven to the light scattering state of FIG. 5 and will remain in that state at zero field. If the multistable material is in the light scattering state of FIG. 5 and a higher electric field pulse sufficient to untwist the chiral molecules is applied, e.g., about 10 volts per micron of thickness, the liquid crystal molecules will reform to the light reflecting state of FIG. 4 at the end of the pulse and will remain in that condition (column 11, lines 10-18) corresponding to driving means to apply voltage to each pixel; and the combination of the AC voltage source 17 connected to the electrodes 13 in order to switch the cell between different optical states (column 7, lines 52-54) and the intensity of reflectivity along the grey scale is proportional to the amount of chiral material switched from the planar texture to the focal conic texture, or vice versa, which is in turn proportional to the voltage of the AC pulse (column 10, lines 29-33) corresponding to control means controlling said driving means to supply an initial voltage to said pixels to set all pixels to the p state and it is inherent after the pixels are switched to maintain the display for a period of time.

As for claim 14, Yang et al. teach a preferred pitch length ranges from about 1 to about 4 microns which is a design choice which could have been different (column 8, lines 41 and 42) corresponding to said liquid crystal cell has a gap of 4 to 20ms which is again a design choice which could have been different value.

As for claim 15, Yang et al. teach the switch which is in series to the AC pulse voltage controls the state of the cholesteric displays by opening the closing the switch

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(Fig.7) corresponding to the liquid crystal display is driven only on receipt of a signal by the control means.

As for claim 17, Yang et al. teach the focal conic and twisted planar textures corresponding to the FC state and the P state, twisted planar textures in the absence of a field and permits the liquid crystal to change textures upon the application of a field (column 3, lines 25-27) where (reset is equal change) corresponding to reset a voltage to set the pixels in the display to the reflective P state; the material will reflect colored light of an intensity that is proportional to the amount of material that remains in the planar reflecting texture. The reflectivity will thus be lower than that reflected from the material when all of the chiral material is in the planar reflecting texture, but still higher than when switched completely to the focal conic scattering texture (column 12, lines 4-10) corresponding to switching selected pixels to provide the desired pattern to the FC state; and displays as described above in which the ordinary index of refraction of the liquid crystal is matched to the refractive index of the polymer, the device appears most transparent (field-ON-state) when viewed along the direction of the field which is usually normal to the viewing surface (the direction of the field is where the holding takes place and it is inherent that they hold it a period of time) (column 1, lines 60-65) corresponding to holding said display for a suitable viewing period.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103 (a) as being unpatentable to U.S.

Patent # 5,847,798 ("Yang et al.") in view of U.S. Patent # 6,154,190 ("Yang et al. ").

As for claim 16, Yang et al. teach FIG. 9 is a plot of the reflection spectra of the black-white bistable cholesteric displays corresponding to a bistable cholesteric display. Accordingly, Yang et al. teach all the claimed limitations as recited in claim 16 with the exception of providing a display incorporated in a pager or cellular phone.

However, Yang et al teach the present invention has applicability to other displays for use with palm-held computers and pagers (column 7 lines 55 and 56) corresponding to a display incorporated in a pager or cellular phone.

It would have been obvious to utilize the display pagers as taught by Yang et al. in the cholesteric reflective display disclosed by Yang et al. because this would allow the display size to be increased to a desired value.

Claims 7-14 and 18-21 are rejected under 35 U.S.C. 103 (a) as being unpatentable to U.S. Patent # 5,847,798 ("Yang et al.") in view of U.S. Patent # 5,274,484 ("Mochizuki et al").

As for claim 7, Yang et al. teach FIG. 9 is a plot of the reflection spectra of the black-white bistable cholesteric displays corresponding to a bistable cholesteric display. Accordingly, Yang et al. teach all the claimed limitations as recited in claim 7 with the exception of providing an overlapping electrodes.

However, Mochizuki et al. teach the above selectively supplied voltage overlaps with the former initializing voltage and the driving voltage is applied in total between the scanning electrodes and the signal electrodes (column 7, lines 47-50) corresponding to said display includes a matrix of overlapping electrodes with the pixels of the display being defined by overlapping regions of said matrix of electrodes.

It would have been obvious to utilize the overlapping electrodes as taught by Mochizuki et al in the cholesteric reflective display disclosed by yang et al because this would provide a gradational display for displaying middle brightness between bright and dark states.

As for claim 8, Mochizuki et al. teach Fig.11 with the first set of electrodes 11-1 and the second set of electrodes 11-2 which are overlapping with the first set of electrodes 11-1, In FIGS. 3A to 3D, plural lines of upper first electrodes 11-1 are preferably used as scanning electrodes that supply the phase transition type liquid crystal display panel with the initializing voltage for changing all of the picture elements of a liquid crystal into initial states, e.g., H (bright) states (column 7, lines 38-43) corresponding to wherein the reset voltage from the driving means is provided to said electrodes to drive all said pixels to the p state.

As for claims 9 and 20, Mochizuki et al. teach a scanning driver Fig.11 (20) and data driver (30) corresponding to an address voltage to one set of electrodes and a data voltage to the remaining set of electrodes.

As for claim 10 and 11, Mochizuki et al. teach a scanning driver Fig.11 (20) and data driver (30) corresponding to an address pulse voltage and a data pulse voltage to the remaining set of electrodes and the approximated voltage value is just a design choice which can vary depending on the design.

As for claim 12, Mochizuki et al. teach 11-1, 11-2 denote plural lines of first transparent striped electrodes and plural lines of second transparent striped electrodes made of transparent conductive film (Fig.11).

As for claim 13, Mochizuki et al. teach 11-1, 11-2 denote plural lines of first transparent striped electrodes and plural lines of second transparent striped electrodes made of transparent conductive film e.g., ITO films (Fig.11).

As for claim 18, Mochizuki et al. teach a scanning driver Fig.11 (20) and data driver (30) corresponding to the electrical pulses column and row electrodes to impart a voltage on a cholesteric liquid crystal material in each pixel to drive the switching between the P and FC state.

As for claim 19, Yang et al. teach FIG. 9 is a plot of the reflection spectra of the black-white bistable cholesteric displays and the focal conic and twisted planar textures corresponding to the FC state and the P state, twisted planar textures in the absence of a field and permits the liquid crystal to change textures upon the application of a field (column 3, lines 25-27) where (reset is equal change) corresponding to said reset



voltage and the range between 10 to 40 is a design choice that can be changed to other range depending on the design.

As for claim 21, Yang et al. teach the cell of FIG. 1 is filled with the polymer-liquid crystalline material of the invention. The liquid crystalline light modulating material is generally comprised of phase-separated polymer domains 15 dispersed in surrounding chiral nematic liquid crystal 16 having positive dielectric anisotropy. An AC voltage source 17 is shown connected to the electrodes 13 in order to switch the cell between different optical states (column 7, lines 47-54).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (703) 308-6413. The examiner can normally be reached on from Monday to Friday between 8:00AM and 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9314 (for Technology Center 2600 only)

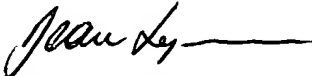
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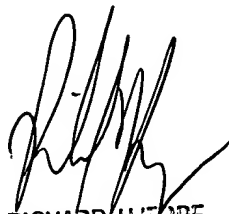
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance



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Date 12-22-2003



RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNICAL CENTER 2600